

Claims

- [c1] 1. A downhole component, comprising:
a tube having an inside diameter and an elongate, generally cylindrical tool joint comprising a first interfacial surface and having a wall;
an upset formed on an end of the tube comprising a second interfacial surface and having an effective inside diameter less than the inside diameter of the tube;
the tool joint being attached to the upset on the tube at the first and second interfacial surfaces and an opening formed within the wall of the tool joint in alignment with a passageway formed in the upset;
wherein the opening and the passageway allow passage of a transmission line between the tool joint and the tube.
- [c2] 2. The downhole component of claim 1, wherein the passageway formed in the upset is provided by varying a thickness of the upset.
- [c3] 3. The downhole component of claim 1, wherein the passageway formed in the upset is provided by forming the effective inside diameter of the upset eccentric from a longitudinal axis of the tool joint.

- [c4] 4. The downhole tube of claim 1, wherein the passageway formed in the upset is provided by at least a portion of the upset having a thickness that is less than the tool joint bore wall thickness at the first and second interfacial surfaces between the tool joint and the upset.
- [c5] 5. The downhole component of claim 1, wherein the passageway formed in the upset comprises a circumferential chamfer in at least a portion of the upset.
- [c6] 6. The downhole component of claim 1, wherein the passageway formed in the upset comprises a circumferential groove in at least a portion of the upset.
- [c7] 7. The downhole component of claim 1, wherein the passageway formed in the upset comprises a spiral groove in the upset.
- [c8] 8. The downhole component of claim 1, wherein the passageway formed in the upset comprises an axial groove in at least a portion of the upset.
- [c9] 9. The downhole component of claim 1, wherein the passageway formed in the upset comprises an internal passageway intersecting the second interfacial surface and a transition surface of the upset.
- [c10] 10. The downhole component of claim 1, wherein the

passageway formed in the upset comprises one or more external passageways intersecting at the second interfacial surface and a transition surface of the upset.

- [c11] 11. The downhole component of claim 1, wherein the tube and the tool joint are joined at the first and second interfacial surfaces by friction welding.
- [c12] 12. The downhole component of claim 1, wherein when the tool joint is welded to the tube, the passageway and the opening are sufficiently aligned to allow passage of a transmission line between the tool joint and the downhole tool.
- [c13] 13. The downhole component of claim 1, wherein the passageway formed in the upset allows passage of a transmission line that is in communication with a transmission coupler located in the tool joint and is part of a downhole network for electrical transmission between downhole equipment and surface equipment.
- [c14] 14. The downhole component of claim 1, wherein the component is selected from the group consisting of drill pipe, heavyweight drill pipe, sub-assemblies, and drill collars.
- [c15] 15. The downhole component of claim 1, wherein the component is selected from the group consisting of drill

bits, drill motors, logging while drilling tools, hole openers, stabilizers, under-reamers, rotary steerable systems, drilling jars, drilling shock absorbers, drilling turbines, sensor packages, and measuring while drilling tools.

- [c16] 16. A downhole component comprising a tube with at least one passageway formed in an upset that cooperates with an opening in a tool joint such that when the tube and the tool joint are joined together, the passageway in the tube and the opening in the tool joint allow the passage of a transmission line from the tool joint to the tube.